

# WATER QUALITY MEMORANDUM

## Utah Coal Regulatory Program

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December 16, 2009

TO: Internal File

THRU: James Smith, Permit Supervisor *JS 12/16/09*

FROM: Kevin Lundmark, Environmental Scientist II *KLW*

RE: 2007, 4th Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039-WQ07-4, Task ID #3180

Canyon Fuel Company is conducting mining operations in Dugout Canyon. Mining is progressing north and eastward under the Book Cliffs. Several springs are located in the canyons. Operations are also taking place at a fan portal in Pace Canyon and a refuse pile in the valley below Dugout Canyon. This report is based on data compiled in file O:\0070039.dug\WaterQuality\Dugout\_All\_Dec2009.xls.

Table 7-4 of the MRP identifies the ground water monitoring (frequency) plan for wells and springs. Table 7-4 also identifies the parameters that will be monitored. Appendix 7-6 of the MRP identifies the UPDES sites, and current status monitoring parameters, discharge limits and monitoring frequency. Table 7-5 identifies the surface water program and water quality parameters that will be monitored.

The protocols set forth in Table 7-4 and 7-5 identify monitoring programs to be followed during years of normal precipitation and non-normal precipitation, as defined in the PHC. Selected surface and groundwater sites will be monitored weekly from April 1 through August 31 during the first non-normal wet (>110% of average) and dry (<70% of average) years following permit issuance, as defined by the NRCS snow pack for the Price - San Rafael area on March 1. The first non-normal dry year occurred in 2002, and weekly monitoring was completed April to August 2002 per the protocol. The NRCS snow pack data on March 1, 2007 for the Price-San Rafael area was 60% of average, as reported in the Dugout Canyon 2006 Annual Report.

### 1. Was data submitted for all required sites?

**Springs** YES [X] NO [ ]

Springs in the operational and post-mining groundwater monitoring program include SC-65, SP-20, SC-14, SC-100, SC-116, 200, 203, 227, 259, 259A and 260. Locations of these springs are noted on Plate 7-1. Groundwater discharge from the old Gilson coal seam workings is also monitored and identified as location MD-1.

Springs 200, 227, 259, SC-14, SC-100 and MD-1 reported no flow (data). Springs 203, 259A, 260, SC-116, SC-65 and SP-20 reported flows. Data were submitted for the flowing springs. Although not required by the MRP in 4th Quarter 2007, monitoring was also reported for spring location 321.

**Streams**      YES ☒ NO ☐

Surface Water sites DC-1, DC-2, DC-3, PC-1a, PC-2, RC-1 and FAN (a new site on Pace Creek) are monitored for flow and chemistry once each calendar quarter during years with normal precipitation.

Stream sites DC-3 and RC-1 reported no flow. In the Dugout Creek drainage, locations DC-1 and DC-2 reported flow of 377 gpm and 2 gpm, respectively. Flows measurements in the Pace Canyon were 11 gpm at location PC-1A, 28 gpm at location FAN, and 470 gpm at location PC-2. Water quality data was reported for all stream sites that had flow. Although not required by the MRP in 4th Quarter 2007, stream monitoring data were also reported for locations SS-1 and SS-2.

**Wells** YES ☐ NO ☒

Table 7-4 and Section 731.200 of the MRP specify that wells GW-10-2, GW-11-2 and GW-24-1 are to be monitored quarterly for water levels. Well GW-24-1 became blocked during the winter of 1999-2000 and was removed from monitoring after 4<sup>th</sup> Quarter 2004.

Water level measurements were reported for the wells GW-10-2 and GW-11-2. In addition, water level data were collected for wells DH-1, DH-2 and DH-3.

**UPDES**      YES ☐ NO ☒

There are six discharge sites from the disturbed area and mine into Dugout and Pace Canyon Creeks under UPDES permit UT0025593 issued by the Utah Division of Water Quality. The permit identifies the maximum discharge levels and monitoring requirements for specified constituents. Mine water is currently pumped directly into the Dugout Creek (001). Disturbed runoff is directed to the sedimentation pond that can discharge to the Dugout Creek (002). Discharge Site 003 is a discharge from the 30,000-gallon water tank and Site 004 is the discharge from the waste rock area. Mine water is pumped to Pace Creek (005) out the Fan Portal. Disturbed area runoff from Pace Canyon is directed to a catch pond, which discharges to Pace Creek (006).

Monitoring is required to be completed twice monthly per the UPDES permit. Monitoring data for December 2007 was not provided for Sites 002, 003, 004 and 006. During 4<sup>th</sup> Quarter 2007, Site 001 discharged between 224 to 574 gpm, Site 003 discharged 100 to 494 gpm, and Site 005 discharged 233 to 947 gpm.

**2. Were all required parameters reported for each site?**

**Springs**      YES ☒ NO ☐

The required parameters were reported when flow was present.

**Streams**      YES ☒ NO ☐

The required parameters were reported when flow was present.

**Wells** YES ☒ NO ☐

**UPDES**      YES ☒ NO ☐

The required parameters were reported when discharges took place.

**3. Were irregularities found in the data?**

**Springs**      YES ☒ NO ☐ .

The temperature for spring 260 was reported as 0 degrees C. Dissolved calcium and total alkalinity also appeared slightly elevated at this location.

**Streams**      YES ☒ NO ☐

The sample collected at location DC-1 contained elevated concentrations of dissolved calcium, magnesium, potassium, sulfate, and TDS, and the field-measured conductivity at this location was also elevated. The operator reported that the monitoring at this location represented storm water conditions. Other locations with elevated measurements during 4<sup>th</sup> Quarter 2007 include DC-2 (alkalinity), FAN (TDS), PC-1A (TSS), and PC-2 (hardness).

**Wells**      YES ☐ NO ☒

**UPDES**      YES ☒ NO ☐

The reported concentration of TDS in the sample collected November 28, 2007 at Site 003 (340 mg/L) is below the range of previously measured TDS for this site (926 to 1,641 mg/L).

**4. On what date does the MRP require a five-year resampling of baseline water data.**

The resampling due date is July 2014

**5. Based on your review, what further actions, if any, do you recommend?**

None.

**Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? [ ] Yes [X] No**

A copy of the data file will be e-mailed to the Mine Operator and DOGM Mine Inspector identifying any missing and irregular data.

**6. Follow-up from last quarter, if necessary.**

**Did the Mine Operator submit all the missing and/or irregular data (datum)?**

This report and the previous report were delayed to process mine permits.